THE NATURAL BASIS OF INTEREST.

No attempt will here be made to deal with "loan interest" or with the *rate* of interest. The subject of this essay is what Dr. von Böhm-Bawerk calls "natural interest," and the purpose of the paper is merely to explain the general principle upon which the *fact* of interest depends. With that end in view I have as far as possible ignored the principle of competition upon which the rate of interest so largely depends. The monumental work of Dr. von Böhm-Bawerk and the more recent essays of Professor Hadley and others have done much to clear up the true nature of interest, yet it seems to the writer that the most adequate, and at the same time the simplest, explanation has been overlooked by these talented economists as well as by their predecessors. Such an explanation is here attempted.

Professor Gide has said that "the notion of value is the basis of all political economy," and in partial justification of that thesis it is the purpose of this paper to show that in the variability of value which is the necessary consequence of its relativity we have the basis for a simple and natural explanation of interest. In opposition to the labor theory of value, the assumption upon which this essay proceeds is simply that contained in Mr. McLeod's definition of value, viz.: "The value of any economic quantity is some other economic quantity for which the first will exchange." Put somewhat more abstractly, this means that value is the expression of the relation of exchangeability between the thing valued and one or more other things; and the implication is that the value of any specific thing is liable to change with every change in the relations of that thing.

Suppose that by a day's labor upon rent-free land *A*, working alone, can produce 4; and that under similar circumstances *B* can also produce 4; and so with *C*. Suppose, further, that by co-operating any two of them can produce not 8, but 10; and

that if all three combine their labor they will produce 18.[1] We may suppose that *A* and *B*, who have formerly been working alone, awake to the realization of the truth that in union there is strength, and resolve to unite their forces, and that at the end of the day, when the 10 that has been produced is to be distributed, *A*, who has proposed to *B* that they should work together, proposes to take 5, half the product of their united labors, and leave the other 5 to *B*. What should we think if *B* should protest, and say to *A:* "The value of the product of your labor is 4, as is evident from the fact that you have never produced more than 4 unless you have had someone to help you. It is clear then that, of the 10 produced, all in excess of the 4 your labor can produce is due to my co-operation with you; the 4, therefore, is your share, and the remaining 6 is mine." *A* would of course reply: "True, I can produce only 4 when working alone; you can produce no more; but by working together we can work to greater advantage and we then produce 10, — that is to say, the share produced by each of us is 5; 4 is the full wage earned by the isolated labor of each of us, but the wage earned by each of us in united labor is 5." Suppose further that, when they have agreed to this view, *C* proposes to work with them, and together the three produce 18; whereupon *C* says to *A* and *B*: "You two can produce only 10, so you ought each to take 5; the 8 additional is my contribution." *A*, who was first in the field, might reply with just as much (and just as little) justice: "Neither of you, *B* and *C*, can earn

[1] If it be said that in fact *A*, *B* and *C* could not produce 18 — and indeed could produce nothing — without the use of capital, my answer is that if this be so it only adds to the strength of my contention, which is that whenever *capital enters into production* and the value of the product is greater than the sum of what I designate as the "values in isolation" of the several units of the co-operating factors, *part of the increment in value* of the total over the sum of the isolated values of the units which are combined to produce that total, is due to capital, *is interest.* In my illustration I have assumed that labor is applied directly to rent-free land without the assistance of capital, partly for the sake of simplicity and clearness in exposition, and partly that I might show those who claim everything for labor, that, even if labor and land were the only original productive powers, the very *claims* made *for labor* would *ultimately necessitate similar claims for capital.*

more than 4; you never did earn any more up to the time that you began to work with me; hence it is evident that of the 18 produced by us, 8 should be divided equally between you, the remaining 10 must be the reward of my exertion." Of course we see the fallacy in this, and recognize that while the productive power of the labor of *A* or *B* or *C in isolation*[1] is 4, its power *in combination*[2] is different; that its power in a combination of two is 5, and that in a combination of three it is 6.

Now let us put it differently. Suppose that our three laborers, instead of all working simultaneously, have found it advisable that one should begin an hour earlier than the others, making things ready so that the other two could work to the greatest advantage upon the latter stages of the work; and that accordingly *A* should start in an hour earlier, and after keeping an hour ahead all day should knock off an hour earlier than *B* and *C*. We may suppose that there is no difference in the value of the early and the late work, and that, so far as skill and hardship are concerned, it makes no difference whether *A* or *B* or *C* takes the early hour of work. It will be perceived that *B* and *C*, if *A* is the early worker, really apply their labor to the product of *A*'s labor, that is, to wealth that has been produced by *A*'s labor; and as wealth with which labor co-operates for the production of more wealth is capital, if we consider so much of this productive process as takes place in an *hour*, we find it to be the co-operation of two units of labor with one of capital, although when

[1] It makes no difference to the argument whether this "isolation" be relative or absolute, whether it be the isolation of a group or of an individual.

[2] It may be well to call attention to the fact that although the combination here used as an illustration is a contemporaneous one, the principle to be elucidated does not require that the combination be contemporaneous, and, indeed, the principle cannot be fully comprehended unless it be understood that the combination is not necessarily contemporaneous. Upon consideration it will be recognized that whenever capital is employed we have in effect a combination of present with past labor. Hence, while it may often *appear* that a combination is very small,—that of half a dozen men, let us say,—yet, in fact, by their use of capital, the labor of the men who are *obviously* engaged in the enterprise is brought into combination with all the labor (and capital and land) which had any part in the production of the capital they are now using, and this may, and in fact generally does, go back hundreds of years, and so may make the virtual combination a very great one.

we consider the productive process of the whole day we are at liberty to regard it as the co-operation of three units of labor. We may suppose that *B* and *C* prefer to regard the process as a combination of their labor with *A*'s capital; and to reason that the value of this capital produced by *A* is 4, while the value of the total product is 18, and that therefore, since 18 minus 4 equals 14, and 14 divided by 2 equals 7, it will be proper for them to turn over 4 to *A* and for each of them to keep half of the remainder—that is, 7—in payment for his labor. *A* might reply that all that *B* and *C* could produce together, without him or the product of his labor, was 10, and that if from the total product of 18, this 10 be subtracted, 8 would remain; that therefore 8 was due to his contribution, and *B* and *C* should each be satisfied with 5. The one contention seems to me as reasonable as the other; the fact being that *A*'s contribution, whether in the form of labor or of capital, that is, whether in the form of *present* labor ("free labor") or of *past* labor (labor stored up in capital), is equally important to the total result. *A*'s present labor has one value in isolation (4), and another in combination with two equal labors (6). So the past labor in *A*'s capital has one value considered by itself (4), and another value when combined with the present labor of *B* and *C* (6). *The cases do not seem to me to be essentially different whether what is combined with B's and C's present labor is A's* PRESENT *labor or A's labor of* LAST HOUR; nor whether it is *A's labor of last hour* or of last year *or of ten years ago.* In any case the value in combination of this factor in the production belongs to its owner at the time of the combination,—that is, to him who is its owner during the productive process. If *A* still owns the labor embodied in the capital he has produced, its value in its present combination (the value 6) belongs to him, even though the labor may have been put into the capital a score of years back. If, on the other hand, *A* has chosen to *sell* the labor embodied in his capital at the value it had when not co-operating with other labor or capital (the value 4), then it is perfectly proper that *B* and *C*, who have bought it, should get the increase of value (2)

which the past labor of *A* has when combined with their present labor.

Comparing the case first put with the two cases last proposed we see that: In the first case, where *A*, *B* and *C* combine their labor and produce 18, which they divide equally, we say that each gets a wage of 6. In the second case, where *B* and *C* combine their labor with the capital produced by *A*'s labor and which still belongs to *A*, they also produce 18 and also divide the product equally, and we say that *B* and *C* each gets a wage of 6, and *A* a "gross interest"[1] of 6,—that is, he gets back his principal, or the value of his wealth when not used as capital, that is, when not combined with other factors for the production of wealth (4),[2] together with (a true, or net) interest thereupon (2),—which interest represents the difference between the value of this wealth when in combination with two units of labor in a productive process and its value in isolation.[3] In the third case, where *B* and *C* have bought *A*'s past labor (*i.e.*, capital) at its value in isolation (4), and the product of their present labor combined with this capital (or past labor) is again 18, 12 of this 18 represents the wages of the labor of *B* and *C*, 4 of it represents the isolated value of the capital invested, and the remaining 2 represents the (net) interest on the "capital" invested; but in this case the interest (following the present ownership of the capital) happens to go to the men who also contribute the present labor. Nevertheless it should be clear that of the 9 which each of the partners gets, but 6 is wage, 2

[1] Although the term *gross interest*, used to describe the "amount" of the capitalist's return, said amount consisting of the equivalent of the original capital consumed plus the (true) interest thereupon, is objectionable in that it obscures the fact that it includes the base upon which the rate of net or true interest is computed, yet it has the advantage of brevity.

[2] For simplicity we have supposed that the wealth was produced by the application of labor to rent-free land, so that the value of the wealth might be equal to the value of the labor embodied in it.

[3] Let me repeat, it makes no difference to the argument whether this "isolation" be relative or absolute, the point to be emphasized being the *different values of the same unit* (whether of land, labor or capital) *according as it appears in a smaller or in a larger combination.*

being the repayment of his share of the capital employed, and the remainder (1) being the interest thereupon.[1]

This illustration seems to me to afford a satisfactory explanation of the nature of interest. And I would parenthetically remark that it seems to me also to justify it, putting it upon the same basis as wages. For unless it be contended that, although *A*'s (present) labor is more productive and has a higher value when combined with *B*'s and *C*'s than when exercised alone, yet he ought not to receive any higher wage when working with *B* and *C* than when working alone, because, although he produces more, he works no harder, unless, I say, this be contended,[2] I cannot see why it should be contended that *A* is not entitled to the full present value of his past labor, merely because that present value (its value in combination with *B*'s and *C*'s labor) is greater that its past value (its value when exerted alone). The past value (or value in isolation) is represented by the face of the principal, that is, the nominal value or mere *wealth* value of the capital; the present value (or value in combination) by the "gross interest," that is, by the principal plus the true interest. That is to say, (net) interest is the difference between the isolated value of capital — that is, its value *as so much mere wealth* — and its value when combined with other productive factors to bring into being a new form of wealth — that is, its value *as capital.* This may be a negative quantity, a discount, a loss. If the productive undertaking results in failure, the differ-

[1] It will be understood, of course, that I do not mean to imply, by the definite quantities used in my illustration, that we can always, or *often*, accurately determine how much of a product is due to the labor employed, and how much to the capital. My point is merely that the value of *capital in combination* (actual capital) is, or is likely to be, different from the value of *capital in isolation* (potential capital, or mere wealth), *just as the value of labor in combination is different from its value in isolation;* and that the difference between the wealth-value, or value in isolation, of the capital, and its value in combination, is theoretical interest. As to how much of the product goes to interest, how much to wages of common labor, and how much to the payment of entrepreneur activity, I have nothing to say in this paper.

[2] And how it should be, I fail to see. The fact that the difference between the larger and the smaller wage is a "producer's rent" does not seem to me to furnish any reason why the producer should not keep it. To whom should it go, in a non-socialistic organization of industry, if not to him?

ence between the value of the capital in its original form, as so much wealth, and its value when involved in combination with the other factors in the aforesaid enterprise, is a difference in favor of the original value; that is to say, the interest here is a negative quantity. As value varies with every change in relation of the thing valued, so interest varies with the different forms of capital and the character and extent of the enterprise in which it is employed. Interest, then, is simply the difference between the values of the same wealth in different combinations.[1]

A great deal has been made of *time* in the explanation of interest. It is true that interest cannot be produced without the lapse of time,—simply because no change can take place except in time, and interest is the measure of the change in the value

[1] It is misleading to speak of a common rate of interest. We know that certain kinds of fixed capital sometimes earn an interest considerably above or below the so-called current rate. And not only so; but the same kind of capital earns one rate of interest here and another there. Yet we are far from denying that, when rightly understood, the doctrine that in any given market, at any given time, there is a uniform rate of interest, is true. We mean when we say that the current rate of interest is, say, 5 per cent., that, although a certain kind of capital ("capital goods") may at present be earning 7 per cent. and another kind 3 per cent. while a third kind may be earning 6 per cent. employed in one way and 4 per cent. when employed in a different undertaking, yet the average earning of capital is 5 per cent., and, this being so, competition will bring it about that the kind of capital now earning 3 per cent. be speedily reduced in quantity till it shall command 5 per cent., while the quantity of that which earns 7 be increased (if some form of monopoly do not prevent) till it shall earn no more than the current rate. I should have said that this is what we would mean if we referred to "natural interest" (to use Böhm-Bawerk's term) when we said 5 per cent. was the current rate of interest. What, as a rule, we do mean when we speak of the current rate of interest, is the rate of "loan interest," which differs from the average rate of natural interest much as the rate of wages actually paid to common labor by the entrepreneur differs from the average of what such labor actually produces. Some enterprises turn out well and others result in disaster. If each individual laborer were to get exactly what his labor should actually produce, he might get much or he might get little; his reward would be dependent not alone upon the faithfulness and ability of everyone taking part in the industry with him, upon the quantity and quality of the capital used, etc., but also upon variations in supply and demand and changes in methods of production (which might result from the progress of invention, and be quite beyond the foresight of the most able entrepreneur). As the common laborer cannot afford to take such a risk, he commutes for the product of

of capital which results from putting it into new relations. But there is no special connection between time and (positive) interest, other than this. In so far as the extent of the change in the capital will naturally bear a certain relation to the length of time during which it is subjected to changing conditions, and in so far as the extent of the change in value bears a relation to the extent of the change in material conditions, it is natural that we should find that, in general, the greater the length of time the capital is productively used the greater the interest; but time will do nothing for capital unless the capital be combined with the other productive factors (that is, time will do nothing for *wealth* until it becomes *capital*); and even then, if the enterprise be an unfortunate one, time may only bring about negative interest,—that is, the value of the capital may diminish.[1]

Böhm-Bawerk, following Galiani, puts the stress on time in his explanation; and although his explanation may be good so far as it goes, its limitation is that it carries the implication that

his labor, and accepts a definite wage, which the entrepreneur undertakes to pay him daily or weekly, as the case may be, regardless of whether the enterprise results well or ill. It is to be expected that this commuted wage should be less than the average product of this class of labor; because the particular enterprise in which the labor is engaged may result in a loss, in which case the entrepreneur will suffer, while the laborer, whose wage is guaranteed, will nevertheless get the agreed sum for the labor he has expended. It is natural, therefore, that the entrepreneur should charge for the *insurance*, and that this element of insurance should take the form of a discount upon the average productivity of the class of labor in question, so that the wage actually paid would be less than such average productivity. Now the rate of *loan interest* is, I believe, similarly, a commutation of the average rate of interest earned (produced) by capital; but in this case the commutation is a more complex operation. The element of insurance may here be said to appear on both sides. In so far as the borrower must be compensated for guaranteeing a fixed return to the lender, whether the enterprise in which the capital is used shall prove profitable or unprofitable to him, this tends to *lower* the rate of loan interest; and, on the other hand, in so far as the lender must insure himself against the possibility that the principal will not be returned and that the security will afford insufficient indemnity, this tends to *raise* the rate of loan interest. It will be seen, then, that the rate of loan interest (the marginal price for the use of *capital*, as distinguished from *capital goods*) does not necessarily coincide with the average productivity of capital, but that it is a commutation and a somewhat complex one.

[1] It should be noted in passing that the effect of time upon "the vital forces of nature"—of which Turgot, in the earliest "fructification" theory, and Henry George,

present goods are *always* more valuable than future goods, and always must be, and that this is the explanation of interest. This, I think, is a misplacement of emphasis. As a matter of fact, that which was capital[1] last year, and will be capital year after next, may command no interest this year and next year. If in time of civil commotion I take all my wealth (including capital) to a safe man and beg him to keep it for me, making what use of it he likes, provided only he will return to me the bulk of it less a percentage as a wage for his care of it, he may use a portion of my wealth as capital and yet pay me no interest therefor, but on the contrary retain part of the wealth committed to him as payment for his care and protection of it as a whole—that is, of so much of it as he returns to me. I may take to him 105 units of wealth, much of which had in my hands been capital; he may use part of these units as capital, so that on the whole the transaction would be an advantageous one to him even if I did not pay him for keeping the wealth; but instead of paying me interest on the capital he returns to me but 100 of the 105 units, retaining the 5 units as payment for the service he has rendered me in preserving for me the 100 units intact. I pay gladly, because I know that if he had refused I should have lost, not $\frac{5}{105}$, but perhaps $\frac{100}{105}$, and possibly the whole 105. The payment he demands is just, because there was such a demand for his services that he could have gotten as much as from me from any one of a hundred other proprietors; and as he could not take the care of wealth for them all, it is just that I should pay for the preference he showed me in accepting the care of *my* wealth. If, again, in ordinary times,

in the later one, have made much (see BÖHM-BAWERK, *Capital and Interest*, book i. c. iii. and book vii. c. ii. for criticism of these theories)—doubtless plays its part in the production of interest. Time is here the condition of new and larger combinations of organic elements, thus causing a change in value. And this change in the value of the direct products of nature will naturally affect the value of all other things with which they are in relation.

[1] While I do not accept Böhm-Bawerk's definition of capital, I do not think that the difference between his more subjective and the more objective definition here employed is so great that we need expatiate upon the difference at this point.

this same man, having the ability to use advantageously and productively more capital than he owns, feeling that with my capital his labor would be more productive than it could be without, should take my capital and pay me interest upon it, the transaction would seem to be no less equitable than the one previously described. Here we have two cases of the use of capital—in one of which interest is paid and in the other of which it is not paid; and in both cases we declare the transaction just. What is the explanation? Is it not that in each case a service is done? In the first case the service done me in ensuring the preservation of the bulk of my wealth is greater than the service done him in giving him the use of my capital. In the second case the service done him in enabling him to get larger wages for his labor and larger interest upon his own capital by the use of my capital is greater than the service done me by the preservation of my capital. In other words, we refrain from paying interest in the first case supposed because the service to the owner of the capital in preserving it is greater than the service to the entrepreneur which the productive power of capital gives. In the second case it is the other way, and usually the balance of service is the other way, and therefore interest is usually paid—and justly so.

As (capitalistic) production is a recombination of land, labor, and capital undertaken because it is believed that in the new combination the several factors can be used to greater advantage than out of it—that is, will *be* of greater advantage, will *have more value*—we naturally assume that production is a creation of value. And naturally also it generally *does* effect an increase in value; but not necessarily so; whether it does so or not depends upon a number of circumstances—in the main on the foresight of those who plan it, and somewhat upon chance. An unforeseen change in fashion or a sudden great discovery in the mechanical arts may make the production of certain things a positive injury to all concerned in the undertaking, reducing the value of the capital employed to almost nothing. Or in case college boys on a lark enter upon the production of firewood

from the president's carriage, they may succeed in producing just what they wish to produce—and perhaps we must assume that for these young scoundrels the firewood has greater utility than the carriage—but to the owner of the carriage (as to the world at large) this conversion of his wealth, the carriage, into a factor in the *production of firewood* is a great *destruction of value*.

In change of value, whether it be increase or decrease, whether we have positive or negative interest, there is nothing strange or unusual. We have already seen that labor, as well as capital, may change in value with the extent and character of the various combinations of which it forms a part. But this does not seem paradoxical in the case of labor, because the wage—the estimated *value of the labor in the productive enterprise*—is the only expression of value that we are accustomed to give to labor; "gross interest," however—the estimated *value of the capital in the productive enterprise*—is not the only expression of value we are accustomed to give to capital. On the contrary, we regularly speak of what I have previously designated as its *value in isolation*, that is, its mere wealth value; and it is this wealth value—the value it has prior to, and outside of, the productive enterprise—by which we generally designate it. Hence we are likely to fall into the error of supposing that a specific value is something inherent in a particular thing as such, instead of being dependent upon its relations, and we are prone to assume that this "wealth value" of capital is its "true" value, and that any value over and above this cannot rightfully belong to it.

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